Hydrologic Model Manager

Short Name	PARCHED-MRST v 2.0
Long Name	
Description	
Model Type	Process-based and lumped by hydrological response units
Model Objectives	1. Evaluation and promotion of rainwater harvesting in semi-arid areas 2. Suitable for operation in poor-resource environments 3. Design instrument for rainwater harvesting
Agency _Office	Centre for Land Use and Water Resources Research Porter Building; University of Newcastle UponTyne Newcastle UponTyne; NE1 7RU United Kingdom Funded by: DFID's Natural Resources Systems Programme;
Tech Contact	John Gowing; Centre for Land Use and Water Resources Research Porter Building; University of Newcastle UponTyne Newcastle UponTyne; NE1 7RU United Kingdom
Model Structure	Hydrological response units with submodels for stocastic climate generation, soil water, crop growth, runoff/routing simulation
Interception	
Groundwater	
Snowmelt	
Precipitation	
Evapo-transpiration	
Infiltration	
Model Paramters	Soil physical parameters, topography, crop parameters, climate parameters. Layout of the rainwater harvesting system. Two levels of parameters: level to be easily changed by the (novice) user and the advanced level, normally default and only to be changed by experts
Spatial Scale	Hydrological response units can be from few M2 to several ha.
Temporal Scale	Daily timestep for most processes. The infiltration/runoff submodel uses disaggregation of rainfallin smaller timesteps; either generated or observed.
Input Requirements	• Daily meteorological data in sofar available. Missing values and variables can be generated. • Scenarios for Rainwater harvesting. • Physical characterization (see model parameters).
Computer Requirements	Programme in compiled Visual Basic requires windows95/98. Interaction with Excel requires Excel 95/97. Recommended Pentium with min. 32 Mbytes RAM
Model Output	Graphs, Excel spreadsheet interaction (in- and output), text files
Parameter Estimatn Model Calibrtn	Physical parameters require field measurements and estimation by pedotransfer functions. In principle no calibration required.
Model Testing Verification	Testing and verification of the climate generator (historic data versus stochastic), runoff model (event by event), soil water model (soil water content at regular intervals) and crop model (final yield and leaf area index during growing season).

Model Sensitivity	Very high sensitivity to the soil water retention parameters
Model Reliabiity	Reliability dependent on the quality of the physical parameters and meteorological variables
Model Application	Designed experimental fields and farmers field in Kisangara (Kilimanjaro region; Tanzania). Designed experimental fields at Morogoro (Tanzania). Farmers fields at Mwanza (Tanzania). Validation of pedotransfer functions for the model in Tanzania and Uganda.
Documentation	Available at http://www.cluwrr.ncl.ac.uk/ manual can be requested from John Gowing; See Agency and office
Other Comments	Model suitable for applications in developing countries. Pedotransfer functions to relate simple soil characteristics to soil physical parameters and stochastic climate generator.
Date of Submission	5/11/2001 7:51:46 AM
Developer	
Technical Contact	
Contact Organization	